

# **User Guide**

# **BiOWiSH™ Open Sewage Canals & River**

## **Bioaugmentation for Open Sewage Canals & Rivers**

Human impact on open waters is a growing problem around the world. The largest source of river pollution in many countries is raw sewage and untreated industrial effluent discharged into free flowing canals. BiOWiSH<sup>™</sup> products are designed to promote rapid degradation of a diverse range of carbon and nitrogen sources. BiOWiSH<sup>™</sup> bioaugmentation programs can be implemented in open canals or rivers of any flow and length.

#### What is BiOWiSH<sup>™</sup> Aqua?

BiOWiSH<sup>™</sup> is a proprietary composite biocatalyst that enhances a broad range of hydrolytic, oxidative and reductive biochemical reactions. BiOWiSH<sup>™</sup> contains a novel consortium of metabolically cooperative micro-organisms, with endogenous and exogenous enzymes and small – molecule metabolic co-factors. BiOWiSH<sup>™</sup> products are composed of all natural materials and are non – genetically modified.

Open canals are exposed to changing environmental conditions and cyclic volumetric flows. BiOWiSH<sup>™</sup> provides an easy-to-use water bioaugmentation system that accelerates biological removal of detrimental nutrients from water including ammonia and nitrites.

#### How safe is BiOWiSH<sup>™</sup> Aqua?

BiOWiSH<sup>™</sup> Aqua has no detrimental effects on plants or animals and is composed of organic and 100% biodegradable materials. Aquatic toxicity testing has shown that BiOWiSH<sup>™</sup> Aqua is non-toxic at recommended dosage levels. BiOWiSH Aqua has no adverse environmental consequences. The microorganisms formulated in BiOWiSH<sup>™</sup> Aqua are self limiting and have no lasting effect on local fauna or flora.



#### Available sizes

- 100g / 3.5oz
- 1kg / 2.2lb
- 5kg / 11lb
- 10kg / 22lb

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#### **Benefits**

- Improved Water Quality:
- Removal of organic wastes
- More efficient nitrogen management capability decreased levels of Ammonia (NH<sub>3</sub>) and Nitrates (NO<sub>3</sub>-)
  Through bacillus mediated heterotrophic pathways.
- Reduced odors
- Contributes to sustain natural DO levels
- Degrade organic pollutants in untreated industrial effluent discharged
- Reduced bottom sludge accumulation

### Environment, Safety & Sustainability:

- Better surrounding environment with reduced odor causing compounds
- Minimize the impact of organic loading in water discharged into rivers
- 100% safe No usage of chemicals for treatment

#### What dosing rates should I use?

The optimal dosing rate will depend on the following factors:

- Total length
- Volumetric flow
- Canal tributaries
- Water quality monitoring throughout the canal or river
- Treatment objectives

Dosing rate for open sewage canal or river applications can vary anywhere between 0.1-1.0 mg/l.

Open canals are better served through continuous dosing. BiOWiSH<sup>™</sup> Aqua is a solid product and ships ready-to-dose no activation required. Simply dissolve the product in fresh water and drip dose the active solution into the canal at the desired rate.



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#### **Dosing Point:**

Dosing location will be determined once all of the system's tributaries are identified and characterized.



In order to maximize contact time, dosing should be done as upstream as possible.

Multiple dosing stations need to be planned depending on the system's configuration.

Dosing an active solution of BiOWiSH<sup>™</sup> into each canal can be done using a gravity drip or a dosing pump (please refer to our General Dosing User Guide for further details).

#### **Contacts**

**BiOWiSH Technologies** Tel: +1 312 572 6700 Fax: +1 312 572 6710 Email: <u>wastewater@biowishtech.com</u> Website: <u>www.biowishtech.com</u>



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